Public-Data File 87-7

AVAILABILITY OF GROUND-WATER QUALITY DATA IN ALASKA

By
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Alaska Division of Geological and Geophysical Surveys
in cooperation with Alaska Department of Environmental Conservation

APRIL 1987

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Contents

ABSTRACT

A survey of 39 agencies or programs dealing with ground-water quality data in Alaska has resulted in estimates of the type, amount, and availability of ground-water quality data. The majority of data are associated with reported oil spills (approximately 20,000 sites) and bacteriological analyses of single family ground-water supplies (approximately 22,000 sites). Ground-water quality data are contained in 228 listed reports, including 112 published by the U.S. Geological Survey. Reports typically contain analyses of dissolved constituents of natural waters, but data are also available for landfills, wastewater disposal operations (including areas of septic system use), petroleum product contamination sites, areas of saline or brackish water or where nitrate or naturally occurring arsenic are abundant, and areas where other types of waste disposal, including hazardous waste, have occurred. Excluding oil spills and single-family bacteriological analyses, about half of all data contained in manual filing systems are also retrievable from one or more computer filing systems. Probably less than half of all data contained in manual files are also contained in one or more of the listed reports. Ground-water quality data are widely available in Alaska, but the amount of data available at each site is commonly inadequate to perform detailed evaluations. A substantial number of reports produced during the last three years pertaining to sites of ground-water contamination provide important syntheses of data at these sites.

INTRODUCTION

Alaska's Ground-water Quality Protection Program is under development by the Alaska Department of Environmental Conservation (DEC), in cooperation with the Department of Natural Resources (DNR) and other state, local and federal

agencies and with guidance from the U.S. Environmental Protection Agency (EPA), in response to the federal recognition of "the existence of ground-water contamination problems in virtually every area of the country" (EPA, 1986). The primary goal of the Alaska Ground-water Quality Protection Program is to develop an effective statewide ground-water quality strategy that protects public health and the environment. A major element of this strategy is to provide and utilize information about the availability of ground-water quality data in Alaska (Alaska Department of Environmental Conservation and U.S. Environmental Protection Agency, 1986). This report summarizes the availability of ground-water quality data in Alaska.

Ground-water quality data in Alaska are collected by federal, state, and local units of government as well as by numerous private organizations. The quantity, quality, type, and accessibility of data varies substantially among data collectors. For ease of reference, information in this report is presented in three parts: Part I, a summary of data availability, grouped by federal agencies, state agencies, and local agencies; Part II, a collection of individual organization survey sheets prepared during this investigation; and Part III, a bibliography of published and unpublished reports containing ground-water quality data.

PART I

SUMMARY OF GROUND-WATER QUALITY DATA AVAILABILITY

Reports

Much ground-water quality data in Alaska are collected by DEC and EPA as a result of regulatory authorities over human activities that involve ground water: obtaining drinking water supplies, legally disposing of waste, or

accidentally discharging material (such as petroleum products) into the environment. Other data are collected in studies by DEC, EPA, the U.S. Geological Survey (USGS), and others in response to specific ground-water quality problem areas with effects or potential effects on drinking water supplies, the biological environment, or the safety of subterranean structures. Still other data are collected by agencies involved with developing ground-water supplies such as the Department of Fish and Game (DF&G), the U.S. Public Health Service, local water utilities, the Department of Transportation and Public Facilities (DOT&PF), the Federal Aviation Administration (FAA), and the Department of Defense (DOD).

Most data collected in Alaska are not of sufficient interest to warrant publication and dissemination through technical libraries. Some unpublished data are contained in computerized databases, but the majority of data are contained in manual files or in unpublished, limited distribution reports prepared by consultants or agency personnel. These reports are also typically included in the manual files.

The most readily accessible source of ground-water quality data in Alaska is through published and unpublished reports. The USGS is by far the dominant publisher of data, having published 112 of the 228 reports listed in Part III of this report. Other publishers include the University of Alaska (Institute of Northern Engineering, Geophysical Institute, and Arctic Environmental Information and Data Center), DEC, and DNR Division of Geological and Geophysical Surveys (DGGS). Consulting firms under contracts to DOD, EPA, DEC, and the Municipality of Anchorage and the City and Borough of Juneau have also prepared reports.

The water-quality data contained in available published and unpublished reports is dominantly descriptive of natural ground-water quality characteristics in Alaska, with emphasis on water-supply suitability. Some reports address geothermal conditions or localized water-quality problems, both natural and man-induced.

Computerized Filing Systems

Ground-water quality data for Alaska are available through four computerized databases: The USGS Alaska District Prime QW system, the DEC Statewide Public Drinking Water System, the EPA STORET system, and the DEC PC oil spill file. Data in the Prime QW system were transferred during 1986 from a nationwide computerized database (WATSTORE) located at Reston, Virginia. Although future reliance will be placed on the Prime QW system, water-quality data in both systems are currently retrievable upon request. Approximately 1700 ground-water quality data collection sites in Alaska are contained in the Prime QW system and WATSTORE, and most of the sites are clustered in and around the major population centers in the state, and the Kenai Peninsula (R. Madison, USGS, written commun., 1986). Approximately 40 to 80 percent of these sites contain such ancillary data as well casing depth and opening, and depth to aquifer. Information is retrievable in a printout format by contacting any USGS office in Alaska. Data can be obtaining by supplying geographic descriptors such as latitude-longitude, township-range-section, or subdivision-lot-block. Data can also be extracted by a variety of secondary descriptors (such as well depth).

The DEC Public Drinking Water System is based on a decentralized network of 11 district offices, 3 regional offices, and a statewide coordinator.

Water-quality data, water system inventory data, and enforcement information are maintained on district and regional microcomputers, with monthly updates from some districts to regions, and from regions to the statewide coordinator in Juneau. Data in the system consist of analyses that are collected and submitted to DEC as required by public drinking water regulations (Alaska Department of Environmental Conservation, 1982). Water-quality data describing public water supplies are not always available from the computerized Public Drinking Water System because of incomplete reporting by public drinking water suppliers and because not all data in the manual files are computerized. Information from approximately 1269 Class A and B public water supplies utilizing a ground-water source is contained in the Public Drinking Water System. Class C systems typically have inventory information but little or no water-quality data in the Public Drinking Water System. About 85 percent of all known public systems utilize ground-water sources.

The EPA STORET system is not known to be directly accessible anywhere in Alaska, and entry of Alaska data occurs in EPA's Region X office in Seattle, Washington. The only ground-water quality data contained in STORET are selected analyses submitted to EPA by DEC's drinking water program (B. Bogue, EPA Region X, oral commun., 1986).

The DEC oil spill inventory file is included as a source of ground-water quality data because it contains basic site information (location, responsible party, date, cause and quantity, and a few other types of information) about numerous sites where ground-water quality has been affected by contact with petroleum products. The data are transferred from regional microcomputers to a microcomputer at the Juneau office of DEC. Although the computerized data

are incomplete, the system does contain records of 245 on-land spills occurring since 1984 in the DEC Northern region with reported spill quantities of 100 gallons or greater. Data on these sites, and other, non-computerized sites, constitute a useful source of information regarding the quality of Alaska's ground water.

Manual Filing Systems

Ground-water quality data are contained in a large number of manual filing systems organized uniquely by each managing authority. Page numbers following agency names refer to the locations of individual organization survey sheets in Part II of this report.

Federal Agencies

U.S. Department of Interior

Geological Survey, Water Resources Division, Alaska district (p. 17). Ground-water quality data are stored at sub-district offices in Anchorage, Fairbanks, and Juneau by the township-section system of the Bureau of Land Management (1947). USGS sub-district boundaries are similar to DEC region boundaries. Approximately 11 percent of the files in the system contain water-quality data. Most of these files contain well-log and water-level data in addition to water-quality data. Some data are also stored in separate files alphabetically by town or village. Most of the ground-water quality data stored manually by the USGS is also available through computer retrieval or in reports. No index or map showing ground-water quality data collection sites is available, and no statewide ground-water quality monitoring network exists. Data have been collected mostly as a result of project investigations.

Bureau of Indian Affairs (no survey sheet). The Bureau of Indian Affairs (BIA) has ground-water data for facilities constructed under its authority. The data are either archived in Albuquerque, New Mexico, or are stored in unorganized files in the basement of the Juneau office. Retrieval and identification of amount and type of data are difficult (Larry Ethelbah, USBIA-Juneau, oral communication, 1986).

Fish and Wildlife Service (p. 47). The U.S. Fish and Wildlife Service (USF&WS) is interested in contaminant issues pertaining to federal lands (such as federal wildlife refuges) over which it has jurisdiction. Only one such issue to date has resulted in collection of ground-water quality data. The site involved is in the Kenai National Wildlife Refuge in the vicinity of a polychlorinated biphenyls (PCB) spill. Information is contained in site investigation files in the USF&WS Anchorage office.

U.S. Department of Defense (p. 51)

Ground-water quality data exist for numerous Army, Navy, and Air Force holdings in Alaska, but are only routinely available only through public drinking water supply reports, landfill monitoring reports to DEC, or reports produced for the DOD Installation Restoration Program (IRP) (see Part III of this report). The Air Force IRP has produced several recent reports available for public distribution through the National Technical Information Service or for inspection at DEC and EPA offices. Two Army and one Navy IRP reports are available for inspection at the DEC Northern Regional office.

U.S. Department of Health and Human Services (p. 49)

Public Health Service, Alaska Area Native Health Series, Environmental Health and Engineering Branch. The USPHS maintains about 100 water supply facilities throughout rural Alaska and has extensive ground-water quality data in manual files located at Anchorage, Alaska. Most data are collected for compliance with DEC's Public Drinking Water Program, and are available at DEC offices.

State Agencies

Alaska Department of Environmental Conservation

Division of Environmental Quality (p. 18). Ground-water quality data are available through a variety of programs and at several district and regional offices throughout the state. Data for public water supplies are typically contained at district offices. Data are relatively abundant, but are usually not indexed or are difficult to retrieve by geographic descriptors. Data (mostly bacteriological) are entered monthly into the microcomputer-based public water supply system by system identification number and name. In addition to public water supplies, thousands of bacteriological analyses are stored in "subdivision" or "on-lot" water system files at district offices. The Southcentral region solid waste program contains over 1000 analyses from monitoring wells at 33 facilities.

Ground-water quality data from the oil pollution program are rare, and mostly limited to a catalog of basic information from reported oil spills and leaks. Approximately 20,000 oil spills are estimated to have occurred in the Northern Region alone since 1974, with an estimated total volume of 5 million gallons. Large manual files exist in district or regional offices for specific spills or leaks that are in close proximity to drinking water

supplies. Ground-water data for a few sites are extensive. Files are typically arranged by site name. Several thousand ground-water quality analyses collected under the conditions of wastewater discharge permits are arranged in site files by facility name in the Southcentral Regional office files. Site information is entered into a microcomputer-based information system.

Division of Facility Construction and Operation, Village Safe Water (p.45).
The Village Safe Water program has files of water-quality data for raw water supplies for about 200 villages. Data exist for several different water sources for some villages. Some recent data are also available through DEC's Public Drinking Water Supply program.

Alaska Department of Fish and Game (p. 55)
Division of Fisheries Rehabilitation, Enhancement, and Development. Ground-water quality data are stored on-site at nine fish hatcheries in Alaska that utilize ground water for raising fish stock. The data are not abundant. Parameters measured include trace metals and dissolved minerals with some bacteriological data.

Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys, Water Resources Section (p. 60).
Numerous ground-water studies have been conducted throughout Alaska between 1978 and 1986, resulting in a few published reports and about 17 site investigation files with ground-water quality data. The most extensive investigation occurred at Indian Cove near Juneau where DNR has established a critical Water Management Area because of salt water intrusion problems.

Division of Mining (p. 61). The Division of Mining (DOM) is authorized to issue surface coal mining permits in Alaska and currently has two coal mine permit applications pending for areas near Healy and on the west side of Cook Inlet. The DOM receives ground-water quality data as part of these permit applications, and will receive additional data as described by mining permit stipulations.

Alaska Department of Commerce and Economic Development

Oil and Gas Conservation Commission (p. 59). The O&GCC regulates the disposal of nonhazardous oil-field wastes and liquids into non-potable aquifers and oil producing formations. Permit applications by industry commonly contain data about the geology and fluid chemistry of the receiving formation. The data may be proprietary and unavailable to the public.

Alaska Department of Transportation and Public Facilities (p. 62)

The DOT&PF constructs and maintains a variety of state-owned facilities and is currently responsible for about 700 to 800 facilities. Each facility is described in a volume of the "Inventory and Condition Survey of Public Facilities". Some facilities have on-site water supplies for which information exists and is most likely available through DEC's Public Drinking Water System program.

University of Alaska (p. 53)

Data generated at UAF are not maintained in systematic manual files, but are maintained by individual researchers (including graduate students). Most data are published in reports by the Institute of Water Resources (currently

the Institute of Northern Engineering), the Geophysical Institute, or as Masters theses. Most studies contain data collected near Fairbanks.

Municipalities

Municipality of Anchorage, Department of Health and Human Services (DHHS) On-Site Services (p. 64). The DHHS is responsible for enforcing state standards for single-family water and septic systems within the Municipality of Anchorage, according to an agreement with DEC. Bacteriological data are available for about 7000 single-family water supplies, filed by subdivision, block, and lot. Nitrate data are available for about 50 water systems. These data are obtained prior to issuance of municipal health certificates that are required by many home-financing institutions.

Water Quality Section (p. 64). The Water Quality Section maintains information about the Municipality's 2-year old shallow ground-water monitoring program. This is a cooperative program with the USGS and data are also available at the USGS/WRD Alaska district office in Anchorage. Samples are collected twice yearly at 39 wells and analyzed for a suite of indicators of domestic wastewater contamination.

SUMMARY AND CONCLUSIONS

A wide variety of ground-water quality data filing systems exist among different agencies in Alaska, and, especially within DEC, among different programs and geographic areas. Although the USGS has the most accessible storage and retrieval mechanisms, use of their data is hampered by lack of an index or map identifying sites of data collection, with type of data collected at each site.

DEC is the largest repository of ground-water quality data in Alaska. These data are collected for the purpose of monitoring compliance with permit conditions or regulations applicable to activities that may affect the environment or the public health, such as solid waste disposal, wastewater disposal, oil spills, or public drinking water supply. Although their data are, for the most part, publicly available, substantial accessibility problems result from the general lack of indexes or maps showing ground-water data collection sites, inadequate computer storage capabilities, lack of systematic library systems, and a general lack of data compilation and analysis for sites with substantial amounts of data.

Considering the totality of ground-water data in Alaska, it becomes evident that even though Alaska is relatively sparsely populated, at least some type of data are available throughout all geographic areas. Information for any specific area is scattered among different agencies, and the same information is commonly obtainable from more than one source. The quantity of information for a specific area is typically sparse, however, perhaps consisting only of bacteriological information without well depth, casing information, or concentrations of other parameters. The amount of available information about specific areas of ground-water use tends to decrease with decreasing population density, with very limited information available for many areas utilizing single-family water systems. Exceptions to this are areas of known ground-water quality problems, such as the arsenic-prone bedrock hills near Fairbanks and the area of petroleum product contamination at Peters Creek within the Municipality of Anchorage.

A detailed review of the survey sheets contained in Part II of this report allows gross quantification of the type and amount of available ground-water quality data. Exclusive of public water supplies, approximately 100 sites in Alaska are producing data under current ground-water quality monitoring programs, with the total number of wells or springs with monitoring activity conservatively estimated at 200 to 300. Approximately 1269 class A and B public water supplies utilizing a ground-water source are known to exist, most of which provide routine ground-water quality data. Ground-water quality analyses are available for approximately 1700 sites through USGS computer systems. In addition, approximately 22,000 bacteriological analyses of single-family ground-water supplies are available, and in excess of 20,000 oil spill reports have been received by DEC.

Available data delineating plumes of ground-water contamination in Alaska are rare. Only a few on-site investigations have resulted in such data. Additionally, knowledge of ground-water use (and potential ground-water sampling sites) in the vicinity of reported sites of ground-water contamination is limited. Existing data systems provide an important starting point for initiating inquiries near ground-water contamination sites, but the general expectation should be to find relatively little data prior to field investigation. Inquiries into historic files or reports may, in some areas, result in the acquisition of useful information that would otherwise be overlooked.

ACKNOWLEDGEMENTS

Danita Maynard and Bill Petrik of DGGS assisted with data collection for this report. Bob Madison of the USGS provided an able review of the

manuscript. Bill Ashton of DEC coordinated review within his agency, and Ed Collazzi of DGGS provided helpful editorial assistance. A final acknowledgement goes to all other agency personnel who graciously provided time and information to make the report possible.

REFERENCES CITED

Alaska Department of Environmental Conservation, 1982, State of Alaska, drinking water regulations: Juneau, Alaska, Department of Environmental Conservation, 18-2029 (10/82), 20 p.

Alaska Department of Environmental Conservation and U.S. Environmental Protection Agency, 1986, State/EPA agreement SFY1987: Juneau, Alaska, p. 259-274.

Bureau of Land Management, 1947, Manual of instructions for the survey of the public lands of the United States, 1947: Washington, D.C., U.S. Government Printing Office, 63 p.

U.S. Environmental Protection Agency Office of Groundwater Protection, 1986, Guidance for FY1987 state ground-water grant work programs: U.S. Environmental Protection Agency, 11 p.

PART II

GROUND-WATER QUALITY DATA SURVEY SHEETS

A survey of organizations that collect, store, or disseminate ground-water quality information was conducted by DGGS personnel by telephone contact and in person during the period from October 1986 through March 1987. Identical survey forms were used for all organizations to allow comparison between filing systems and amount and type of data at each organization. Information on the survey sheets is based on estimates made by the contact person for each agency, or by other unnamed staff members.

Most classifications on the form are self explanatory. The classification scheme for organic carbon compounds considers two types of analyses. "General" analyses are measurements of the total amount of organic matter, or some fraction of the total. Examples of "general" analyses include total organic carbon, chemical oxygen demand, oil and grease, and tannins and lignins. "Specific" analyses are measures of specific (usually synthetic) organic compounds. These analyses are usually done according to approved EPA methods such as Method 602 which analyzes for a list of purgeable aromatics.

List of Agency Abbreviations

DEC		Alaska Department of Environmental Conservation
	EQ	Environmental Quality Division (DEC)
	WQM	Water Quality Management (DEC/EQ)
	SERO	Southeast Regional Office (DEC)
	NRO	Northern Regional Office (DEC)
	EH	Environmental Health Division (DEC)
	SCRO	Southcentral Regional Office (DEC)
RCRA		Resource Conservation and Recovery Act
UAF		University of Alaska, Fairbanks
DCED		Department of Commerce & Economic Development
	OGCC	Oil & Gas Conservation Commission (DCED)
DF&G		Alaska Department of Fish and Game

DNR	Alaska Department of Natural Resources
DGGS	Division of Geological and Geophysical Surveys (DNR)
DOM	Division of Mining (DNR)
EPA	U.S. Environmental Protection Agency
DOT&PF	Alaska Department of Transportation & Public Facilities
MOA	Municipality of Anchorage
DHHS	Department of Health and Human Services (MOA)
USF&WS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
USPHS	U.S. Public Health Service

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SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: US Geological Survey, Water Resources Division
Location: 4230 University Drive, Anchorage; 101 12th Ave, Fairbanks; 710 W. 9th Ave, Juneau
Contact Person: Pat Still (Anchorage) Phone #: 271-4138
A. Number of reports containing data (list citations below): Numerous
B. Name of manual filing system containing data: Manual Ground-Water Files
File arranged by: Meridian-Twnp-Rge-Section Size of file:
C. Name of computer filing system containing data: Prime QW file and WATSTORE
Total estimated number of analyses: 1457

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?*	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	once to several times	up to 40 yrs	No	<1457	A,B,C	
Trace metals	once to several times	up to 40 yrs	No	<1457	A,B,C	
Nutrients	once to several times	up to 40 yrs	No	<1457	A,B,C	
Bacteriological	once to several times	up to 40 yrs	No	<1457	A,B,C	
Radioactivity	once to several times	up to 40 yrs	No	<1457	A,B,C	
Turbidity	once to several times	up to 40 yrs	No	<1457	A,B,C	
Color or odor	once to several times	up to 40 yrs	No	<1457	A,B,C	
Organic carbon compounds:						
General (list)	once to several times	up to 40 yrs	No	<1457	A,B,C	
Specific (list)	once to several times	up to 40 yrs	No	<1457	A,B,C	

General Remarks (e.g., accessibility and organization of files): Manual files are located in substrict offices, generally well organized and accessible. No index available.
(REPORT CITATIONS:) QW records are typically in with well log data. Approx 13000 total sites computerized.

* No network of sampling exists, however some projects have ongoing sampling programs until the end of the project.

Reported by: Jim Munter Date: 10-29-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/WQM/Oil Spill Program
Location: Juneau
Contact Person: Paul O'Brien Phone #: 465 2653
A. Number of reports containing data (list citations below): _____
B. Name of manual filing system containing data: Lexitron/Notification Forms
File arranged by: Chronological Size of file: _____
C. Name of computer filing system containing data: PC oil spill inventory file
Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)	Avg of 3/Day	up to 15 yrs	-	> 20,000	B&C	general oil spill site info only
Specific (list)						

General Remarks (e.g., accessibility and organization of files): The PC file contains only recent (< 2 yrs) oil spill data with very scanty recovery or ground-water contamination information. Old data may not be completely retrievable from Lexitron system or paper files. Leaking Underground Storage Tank (LUST) program is currently assembling inventory of underground tanks.

REPORT CITATIONS:

Reported by: Jim Munter Date: 12-11-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: ADEC/Hazardous Waste Program

Location: Juneau

Contact Person: Carl Reller Phone #: 465-2666

A. Number of reports containing data (list citations below): 1

B. Name of manual filing system containing data: N/A

File arranged by: _____ Size of file: N/A

C. Name of computer filing system containing data: N/A

Total estimated number of analyses: 32

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)	Total Organic Halogens, Total organic Carbon	10/85	NO	5	A	
Specific (list)						

General Remarks (e.g., accessibility and organization of files): _____

REPORT CITATIONS: (A) Frontier Tanning Site - AKD09276619 - Suspected Uncontrolled Hazardous Waste Site Inspections (Draft) Tryck, Nyman and Hayes for the Ak Dept. of Environmental Conservation March 1986

Reported by: B. Ashton Date: 10/27/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

Tested for COD, chloride, sulfate, total cyanide, pentachlorophenol

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: ADEC/Hazardous Waste Program

Location: Juneau

Contact Person: Carl Reller Phone #: 465-2666

A. Number of reports containing data (list citations below): 1

B. Name of manual filing system containing data: N/A

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: N/A

Total estimated number of analyses: 24

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals	one time	11/85	NO	4	A	
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Easy - look at Tables in report

REPORT CITATIONS: A. Alaska Husky Battery - AKD009246497 - Suspected Uncontrolled Hazardous Waste Site Inspections (Draft), Tryck, Nyman and Hayes for The AK Dept. of Environmental Conservation May 1986

Reported by: B. Ashton Date: 10/27/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: ADEC/Hazardous Waste Program

Location: Juneau

Contact Person: Carl Reller Phone #: 465-2666

A. Number of reports containing data (list citations below): 1

B. Name of manual filing system containing data: N/A

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: N/A

Total estimated number of analyses: 54

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	once	4/86	No	3	A	
Trace metals	once	4/86	No	3	A	
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: TOX TOC						
General (list)	once	4/86	No	3	A	
Specific (list)						

General Remarks (e.g., accessibility and organization of files): _____

REPORT CITATIONS: New Kenai Landfill Site - AK0980664924 - Suspected Uncontrolled Hazardous Waste Site Investigations (Draft) Tryck, Nyman and Hayes for the AK Dept. of Environmental Conservation, Sept. 1986

Reported by: RAchan Date: 10/27/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: ADEC/Hazardous Waste Program

Location: Juneau

Contact Person: Carl Reller Phone #: 465-2666

A. Number of reports containing data (list citations below): 1

B. Name of manual filing system containing data: N/A

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: N/A

Total estimated number of analyses: 57

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	once	11/85	No	3	A	
Trace metals	once	11/85	No	3	A	
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: TOX General (list) TOC	once	11/85	No	3	A	
Specific (list)						

General Remarks (e.g., accessibility and organization of files): _____

REPORT CITATIONS: (A) Old Kenai Dump Site - AKD 980664866 - Suspected Uncontrolled Hazardous Waste Site Inspections (Draft) Tryck Nyman and Hayes for The AK Dept. of Environ Conservation, May 1986

Reported by: B. Ashton Date: 10/27/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SE/RO Drinking Water Program
Location: Juneau, Alaska
Contact Person: Roy Warren Phone #: 789 3151
A. Number of reports containing data (list citations below): None
B. Name of manual filing system containing data: Public Water Supplies
File arranged by: Name Size of file: 3 drawers
C. Name of computer filing system containing data: Public Water Supplies
Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	3 yrs		Yes	31	B&C	Class A systems
Trace metals	3 yrs		Yes	31	B&C	Class A systems
Nutrients	up to 4 yrs		yes	70	B&C	A+B systems
Bacteriological	monthly-quarterly		yes	70	B&C	A&B systems
Radioactivity	–					
Turbidity	–					
Color or odor	–					
Organic carbon compounds:						
General (list)	not routine					
Specific (list)	not routine					

General Remarks (e.g., accessibility and organization of files):

REPORT CITATIONS:

Reported by: Jim Munter Date: 12-15-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

ADEC Public Water System Information

Current 1-26-87
Source: Dick Farnell, DEC

I. Numbers of public water systems which have ground water as all or part of their sources.

Region	Class A	Class B	Class C	
Southeast Region	30	37	0	
Southcentral Region	295	585	561	
Northern Region	82	240	215	
Total Statewide systems on groundwater	407	862	776	2,045*

* Note: There is a total of 2400 systems in the state from all sources

II. Population served by Public Water Systems which have ground water as all or part of their source.

Region	Resident population served	Non-resident population served (restaurants, etc.)*
Southeast Region	22,885	8,728
Southcentral Region	205,194	76,468
Northern Region	66,815	40,048
Statewide population utilizing ground water	294,894	125,244

* Note: Double counting exists between these two columns because of the resident vs. non resident.

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SE/Juneau District

Location: Juneau

Contact Person: Ron Flinn Phone #: 789 3151

A. Number of reports containing data (list citations below): —

B. Name of manual filing system containing data: Single-family water sources

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: _____

Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological	at sale of property	3 yrs	No	about 900	B	
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Some analyses have been discarded.

REPORT CITATIONS: _____

Reported by: Jim Munter Date: 12-16-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: Public DEC/EQ/NRO/Drinking Water Supplies

Location: 675 Seventh Ave, Fairbanks, AK

Contact Person: Stan Justice/Rielle Markey Phone #: 452-1714

A. Number of reports containing data (list citations below): 3

B. Name of manual filing system containing data: Public Water Supplies* (Facility name)

File arranged by: Area/chronological w/ index Size of file: 1 cabinet, if consolidated

C. Name of computer filing system containing data: Statewide Drinking Water file

Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	highly variable	8 yrs	yes		B	
Trace metals	up to 3 yrs	8 yrs	yes		B*C	
Nutrients	up to 3 yrs	8 yrs	yes		B*C	
Bacteriological	daily-quarterly	8 yrs	yes		B*C	reported monthly
Radioactivity	usually one	8 yrs	yes		B*C	
Turbidity	Very rare	—	—	—	—	
Color or odor	highly variable	8 yrs	yes		B	
Organic carbon compounds:						
General (list)	None or Rare					
Specific (list)	None or Rare					

General Remarks (e.g., accessibility and organization of files): *within NR office master files. Files also contain field notes made during site visits

REPORT CITATIONS: Fairbanks MUS report (copied title page), Anderson report (copied title page) (some engineering reports for Utilities exist in system files)

Alaska Dept of Env. Cons., 1984, Otter Fairbanks wafering Point, needs assessment and Feasibility study: Village Safe Water Program, ADEC, 28p.

Reported by: Jim Munter Date: 10-27-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/NRO/Interior District

Location: 675 7th Ave. Fairbanks, AK

Contact Person: Doug Dasher Phone #: 452-1714

A. Number of reports containing data (list citations below): None

B. Name of manual filing system containing data: Public water* - wastewater* - subdivision*

File arranged by: Area/program/chron, w/ index (Facility name) Size of file: 2 cabinets.

C. Name of computer filing system containing data: Statewide drinking water

Total estimated number of analyses**: 5000

GROUND-WATER QUALITY DATA PARAMETERS**

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	USGS data only					subdivisions only
Trace metals	once	10+ yrs	No	300		"
Nutrients	Once	8 yrs	No	500	B	"
Bacteriological	at sale & prop	10+ yrs	at sale	4000	B	"
Radioactivity	No					"
Turbidity	No					"
Color or odor	No					"
Organic carbon compounds:						
General (list)	No					"
Specific (list)	No					"

General Remarks (e.g., accessibility and organization of files): *within NR office master files **Subdivision files only. Public water supply files described by Stan Justice, wastewater data are very scanty

[REPORT CITATIONS:]

Reported by: Jim Munter Date: 10-27-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/NRG/Solid Waste

Location: 675 7th Ave, Fairbanks

Contact Person: Pete McGee Phone #: 452-1714

A. Number of reports containing data (list citations below): None

B. Name of manual filing system containing data: Solid Waste discipline*

File arranged by: Area/chron. w/index by facility name Size of file: 2-3 sites.

C. Name of computer filing system containing data: None

Total estimated number of analyses: unknown

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	unknown					
Trace metals	unknown					
Nutrients	unknown					
Bacteriological	unknown					
Radioactivity	unknown					
Turbidity	unknown					
Color or odor	unknown					
Organic carbon compounds:						
General (list)	unknown					
Specific (list)	unknown					

General Remarks (e.g., accessibility and organization of files): Borough landfill has 12 or so wells, plus possibly Wainwright landfill

[REPORT CITATIONS:] Kelley McMullen: Borough Environmental Services - Contact for specifics regarding data

*within NR office master files.

Reported by: Jim Munter Date: 10-27-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/NRO/Oil Pollution

Location: 675 7th Ave, Fairbanks, AK

Contact Person: John Janssen Phone #: 452-1714

A. Number of reports containing data (list citations below): 5

B. Name of manual filing system containing data: Oil Pollution *

File arranged by: Area/chron. w/index by site name Size of file: 25-100 cases w/GW data

C. Name of computer filing system containing data: Oil spill file (basic info only)

Total estimated number of analyses: <100

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	None					
Trace metals	None					
Nutrients	None					
Bacteriological	None					
Radioactivity	None					
Turbidity	None					
Color or odor	None					
Organic carbon compounds: General (list)	Volatile aromatic hydrocarbons	~10	see citation			grease oil and sampled for "product" (visual)
Specific (list)	Benzene, Toluene, Ethylbenzene	rare	below			

General Remarks (e.g., accessibility and organization of files): * within Northern Region Master files. Active cases are in John's office.

REPORT CITATIONS: Copied title pages: 1. Kotzebue (DEC report)
2. Nome (DEC report) 3. Eielson, Phase II, stage I, IRP
4. Northern Region, Phase I, IRP, 5. Eielson, Phase IV, IRP

Reported by: Jim Munter Date: 10-27-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EH/Pesticides

Location: Palmer

Contact Person: Bill Burgoyne Phone #: 745 7378

A. Number of reports containing data (list citations below): None

B. Name of manual filing system containing data: NONE

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: _____

Total estimated number of analyses: See Below

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Ground water samples are taken only in response to complaints. NO ~~REPORT CITATIONS.~~ pesticides have ever been found. No estimate of the number of complaints or sample analyses is available, but the amount of data is effectively nil.

Reported by: Jim Munter Date: 11/24/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EH/SC/MatSu District Office
Location: Wasilla (PO Box 871064)
Contact Person: Paul Pinard Phone #: 376-5038

A. Number of reports containing data (list citations below): none

B. Name of manual filing system containing data: on lot domestic systems
File arranged by: legal description Size of file: ~8, 4-dwr cabinets

C. Name of computer filing system containing data: no

Total estimated number of analyses: perhaps on the order of 12,000

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients	*					
Bacteriological	reference or well	~9 yr	✓	~12,000	B	est. every 3-4 yrs.
~~Radioactivity~~				(maybe 7-8000)		
~~Turbidity~~						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
* maybe 400 nitrate, fecals when DEC receives complaints

REPORT CITATIONS: no reports - individual reports in manual file. Files color-coded to differentiate single family dwellings vs public facilities

Reported by: Maynard Date: 10-22-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EH/SC/RO/Matsu District Office
Location: PO Box 871064 Wasilla 99687-9998
Contact Person: Paul Pinard Phone #: 376-5038
A. Number of reports containing data (list citations below): Ø
B. Name of manual filing system containing data: Public facilities - Class C
File arranged by: legal description Size of file: about 800 sites
C. Name of computer filing system containing data: no
Total estimated number of analyses: maybe 1200

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients	occasional		no	≤100		
Bacteriological	one-time	~9yr	✓	800	B	
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
maybe 100 fecals/nitrates (tested when DEC receives complaints)
REPORT CITATIONS:
data not summarized into reports, but filed in manual file. About 8, 4-door files have single family & all public facilities inter filed. Color coded files differentiate systems.

Reported by: Maynard Date: 10-22-96
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCRO/MatSu: District Office
Location: PO Box 871604 Wasilla 99687-9998
Contact Person: Paul Pinard Phone #: 376-5038

A. Number of reports containing data (list citations below): —

B. Name of manual filing system containing data: Public Facilities - Classes A & B
File arranged by: legal, cross-referenced by facility name Size of file: ~1000 sites

C. Name of computer filing system containing data: Public Wtr Systems ?

Total estimated number of analyses: about 20000

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	every 3 yrs	~9 yr	~~yes~~	1000	B	about 1500
Trace metals	every 3 yrs	"		1000		maybe 1500 of these
Nutrients	"	"		"		
Bacteriological	once/mo.	"	yes	"		
Radioactivity	rarely	"		"		
Turbidity	initial test	"		1500		about 1500
Color or odor	no				↓	
Organic carbon compounds: General (list)	no					
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
testing as osv. primary stds

REPORT CITATIONS: data is not summarized into reports. Data is filed manually & letters of ~~odor~~ noncompliance are issued. All public facilities inter-filed w/ single family dwellings, color coded files differentiate.

Reported by: Maynard - DNR/DMG Date: 10-22-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SC Anchorage-Western District

Location: 437 E street, Anchorage AK 995 3rd floor

Contact Person: Jim Hayden Phone #: 274 2533

A. Number of reports containing data (list citations below): 0

B. Name of manual filing system containing data: Administrative File

File arranged by: Alphabetically by site name Size of file: 3-4 files.

C. Name of computer filing system containing data: none

Total estimated number of analyses: 11

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals	once	1986	NO	6	B	
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)	once	1986	No	5		Total organic halogens
Specific (list)	once	1986	NO	5	B	method 8240 (volatile organics)

General Remarks (e.g., accessibility and organization of files):

Only known analyses are for AVEC wood gasifier site at Klatt Road (APA)

REPORT CITATIONS:

Reported by: Jim Munter Date: 10/21/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCD Anchorage-Western District
Location: 437 E Street Anchorage, AK 3rd Floor
Contact Person: Jim Hayden Phone #: 274 2533

A. Number of reports containing data (list citations below): < 20, not readily extractable
B. Name of manual filing system containing data: Public and Private Facilities
File arranged by: City/Legal (Subdivision) Size of file: 6 file cabinets
C. Name of computer filing system containing data: Statewide Drinking Water
Total estimated number of analyses: est 400 sites x 1/site = 400 analyses

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	once	mostly since 1976	yes	150-200	B	
Trace metals	once	"	yes	150-200	B	Nitrate
Nutrients	once	"	yes	150-200	B	
Bacteriological	once	"	yes	150-200	B&C	
Radioactivity	once	"	yes	150-200	B	
Turbidity	once	"	yes	150-200	B	
Color or odor	once	"	yes	150-200	B	
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
Brief letter reports exist for about 200 sites. Some reports are filed alphabetically by site name (Frontier Tanning)

REPORT CITATIONS:

Reported by: Jim Munder Date: 10-21-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SC&D/Solid Waste

Location: 427 E Street, Anchorage, AK (2nd Floor)

Contact Person: Henry Friedman Phone #: 274 2533

A. Number of reports containing data (list citations below): _____

B. Name of manual filing system containing data: Landfill files

File arranged by: Alphabetical Size of file: 2 Cabinets

C. Name of computer filing system containing data: Solid Waste Permits (See below)

**Total estimated number of analyses: 1200

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	Qtly-Yrly	<5yrs	Yes	33	B	
Trace metals	Qtly-Yrly	1yr?	Yes	33	B	
Nutrients	None					
Bacteriological	Qtrly	<5yrs	Yes	6	B	
Radioactivity	None					
Turbidity	Qtrly	<5yrs	Yes	8-10	B	
Color or odor	intermittent	<5yrs	Yes	a few	B	
Organic carbon compounds:						
General (list)	Qtrly-Yrly	<5yrs	Yes	33	B	Toc, COD, oil and grease
Specific (list)	Qtly-Yrly	<5yrs	Yes	16	B	Volatiles, priority pollutants

General Remarks (e.g., accessibility and organization of files):
Not well organized, No data in computer file

REPORT CITATIONS:

Reported by: Jim Munter Date: 10/15/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCRO/Water Pollution Control
Location: 437 E Street, Anchorage, AK 2nd Floor
Contact Person: Julie Howe Phone #: 274 2533
A. Number of reports containing data (list citations below): _____
B. Name of manual filing system containing data: Wastewater file
File arranged by: facility name/alphabetical Size of file: total # drawers/120 drawers
C. Name of computer filing system containing data: Powerbase (IBM) (site info only)
Total estimated number of analyses: about 40 sites x 3 wells/site * (see below) = ~4000

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	annual	<10yrs	Yes	~10	B	
Trace metals	annual	<10yrs	yes	~10-12	B	
Nutrients	monthly-annual	1-15yrs	yes	40	B	
Bacteriological	monthly-quarterly	1-15yrs	yes	~20	B	
Radioactivity	none					
Turbidity	no GW					
Color or odor	none					
Organic carbon compounds:						
General (list)	monthly	1 yr	yes	1	B	Wasilla Septic System
Specific (list)	monthly	1 yr	yes	1	B	Wasilla Septic System

General Remarks (e.g., accessibility and organization of files): Only state permits (2 drawers) are computerized including all sites with ground water data

REPORT CITATIONS: Deep well injection (oil industry) and wastewater is included as well as carwash, photo shop, agricultural, power generation (Soldotna) and ground-injected cooling water

Reported by: Jim Munter Date: 10/21/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SC/RO/Hazardous Waste (RCRA)

Location: 427 E street Anchorage Ak (2nd Floor)

Contact Person: Colleen Burgh Phone #: 274 2533

A. Number of reports containing data (list citations below):

B. Name of manual filing system containing data: Facility File

File arranged by: Name Size of file: 4 facilities in 75

C. Name of computer filing system containing data: None

Total estimated number of analyses: unknown

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						unk.
Trace metals						unk
Nutrients						unk
Bacteriological						unk
Radioactivity						unk
Turbidity						unk
Color or odor						unk
Organic carbon compounds:						
General (list)						unk
Specific (list)						unk

General Remarks (e.g., accessibility and organization of files):

Most data are contained in reports generated for RCRA

REPORT CITATIONS:

Reported by: Jim Munter Date: 10/15/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SC/89 Prince William Sound District

Location: Valdez, Alaska, (Drawer 1709, Valdez, AK. 99686

Contact Person: Dan Lawn Phone #: 835-4698

A. Number of reports containing data (list citations below): 0

B. Name of manual filing system containing data: On-lot permit file

File arranged by: Chronological w/index Size of file: 1 drawer

C. Name of computer filing system containing data: none

Total estimated number of analyses: 400

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	rare	-	no	a few		
Trace metals	none					
Nutrients	none					
Bacteriological	at sale	maximum 1-10 yrs	yes	400	B	only if bank-financed
Radioactivity	none					
Turbidity	none					
Color or odor	none					
Organic carbon compounds:						
General (list)	none					
Specific (list)	none					

General Remarks (e.g., accessibility and organization of files):

REPORT CITATIONS:

Reported by: Jim Munter Date: 10-16-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCS Prince William Sound District
Location: Valdez, Alaska (Drawer 1709, Valdez, Ak, 99686)
Contact Person: Dan Lawn Phone #: 835 4698
A. Number of reports containing data (list citations below): 0
B. Name of manual filing system containing data: Public Facilities
File arranged by: Geographic area/alphabetical Size of file: 1 file cabinet
C. Name of computer filing system containing data: Statewide Drinking water
Total estimated number of analyses: unknown

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	up to 3 yrs	variable	yes	20	B	
Trace metals	up to 3 yrs	variable	yes	20	B	
Nutrients	up to 3 yrs	variable	yes	<20	B	
Bacteriological	monthly	up to 38 yrs	yes	50	B	
Radioactivity	up to 4 yrs	variable	yes	<20	B	
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)	up to 3 yrs					
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Class A, B, and C systems have different requirements, compliance highly variable

REPORT CITATIONS:

Reported by: Jim Munter Date: 10-16-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCRO/KENAI PENINSULA DISTRICT

Location: BLAZY MALL, SOLDOTNA

Contact Person: SHERRY TALBOTT Phone #: 262-5210

A. Number of reports containing data (list citations below): _____

B. Name of manual filing system containing data: FILING INDEX

File arranged by: ALPHABETICAL WITH SUB HEADINGS Size of file: 1 LOOSE LEAF BINDER

C. Name of computer filing system containing data: _____

Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): This index lists: ~384 public facilities and businesses constituting the General Files; 74 permitted facilities regulated and monitored by D.E.C. as part of the General Files; and ~1216 legal descriptions of residences throughout this District located in the Subdivision File. No index compiled for E.H. Facility files at this time.

REPORT CITATIONS: _____

Reported by: BILL PETRIK Date: 10-23-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCRO/KENAI PENINSULA DISTRICT
Location: BLAZY MALL, SOLDOTNA
Contact Person: BOB CANNONE Phone #: 262-5210

A. Number of reports containing data (list citations below): NONE

B. Name of manual filing system containing data: ENVIRONMENTAL QUALITY GENERAL FILES
File arranged by: ALPHABETICALLY BY FACILITY NAME Size of file: 3-5 DRAWER FILING CABINETS

C. Name of computer filing system containing data: STATEWIDE PUBLIC WATER SUPPLY

Total estimated number of analyses: UNKNOWN

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	≤3 yrs	'79-86	Yes	~400	B, C	See Comments Below
Trace metals	↓	↓	↓	↓	↓	↓
Nutrients	↓	↓	↓	↓	↓	↓
Bacteriological	Monthly	↓	↓	↓	↓	↓
Radioactivity	≤3 yrs.	↓	↓	↓	↓	↓
Turbidity	↓	↓	↓	↓	↓	↓
Color or odor	↓	↓	↓	↓	↓	↓
Organic carbon compounds: General (list)	↓	↓	↓	↓	↓	↓
Specific (list)	↓	↓	↓	↓	↓	↓

General Remarks (e.g., accessibility and organization of files): These files contain information on public facilities and businesses, prosecution ~~REPORT CITATIONS~~: cases, problem areas, spills, permits, and general information. They are not open to public. Contain information on Class A+B+some C water systems. General sampling schedule is listed above. This schedule can be increased according to needs: @ Bac. T - 1 sample per month per 1000 people served by well or by special request because of problems; @ Chemical sampling based on special needs as a problem area. District computer files sent to Region, as well as converse on a monthly basis.

Reported by: BILL PETRIK Date: 10-23-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EQ/SCRO/KENAI PENINSULA DISTRICT
Location: BLAZY MALL, SOLDOTNA
Contact Person: BOB CANNONE Phone #: 262-5210
A. Number of reports containing data (list citations below):
B. Name of manual filing system containing data: ENVIRONMENTAL QUALITY SUBDIVISION
File arranged by: ALPHABETICALLY Size of file: 6-5 DRAWER FILING CABINETS
C. Name of computer filing system containing data: STATEWIDE PUBLIC WATER SUPPLY
Total estimated number of analyses: UNKNOWN

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	See comments below	'80-86	No	Unknown	B	See comments below
Trace metals						
Nutrients						
Bacteriological				~1216		
Radioactivity				Unknown		
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): This file contains water well logs, water sample and well data, on-site sewer/septic information for Class C water systems. Arranged by legal description within subdivision. Bac. T tests submitted at time of purchase of new home or resale of home. Chemical and further Bac. T sampling performed by special requests if problems arise. Currently, no public access. Limited entry/receipt of class C sampling data from/to computer system.

~~REPORT CITATIONS:~~

Reported by: BILL PETRIK Date: 10-23-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/EH/SCRO/KENAI PENINSULA DISTRICT

Location: BLAZY MALL, SOLDOTNA

Contact Person: WILLIAM KRAUS Phone #: 262-5210

A. Number of reports containing data (list citations below): ____

B. Name of manual filing system containing data: ENVIRONMENTAL HEALTH PUBLIC FACILITY FILES

File arranged by: ALPHABETICALLY BY GEOGRAPHIC LOCATION Size of file: 2-7 DRAWER FILING CABINETS

C. Name of computer filing system containing data: STATEWIDE PUBLIC WATER SUPPLY

Total estimated number of analyses: UNKNOWN

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	EVERY 3 YRS	PAST 5 YRS.	YES	~500	B, C	See comments below.
Trace metals	↓					
Nutrients	↓					
Bacteriological	ONCE PER MONTH					
Radioactivity	EVERY 3 YRS.					
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)	↓	↓	↓	↓	↓	

General Remarks (e.g., accessibility and organization of files): FILES ARRANGED ALPHABETICALLY BY FACILITY NAME WITHIN GEOGRAPHIC LOCATION HEADINGS.

~~REPORT CITATIONS~~: ONLY CLASS A+B WATER SYSTEMS ARE ADDRESSED IN THESE FILES. WATER & SEWER SYSTEM PLANS FOR PAST 2 YRS. ON FILE, PRIOR YRS. FILES ARE SKETCHY OR IN SUBDIVISION FILES. AFTER FILES ARE 5 YRS. OLD, THEY ARE ARCHIVED IN A DIFFERENT, MORE INACCESSIBLE FILE. SANITARY WELL SURVEY - AN IN-DEPTH WATER SYSTEM INSPECTION - PERFORMED EVERY 2-3 YRS. COMPUTER FILES SENT/RECEIVED MONTHLY TO/FROM REGIONAL HDQTRS. FREQUENCY OF SAMPLING INCREASES ACCORDING TO POPULATION SERVED BY WELL OR IF COMPLAINTS ARE RECEIVED AND A PARTICULAR WATER SUPPLY SYSTEM IS SUSPECTED TO HAVE PROBLEM

Reported by: BILL PETRIK Date: 10-23-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DEC/Division of Facility Construction and Operation/Village Safe Water
Location: Juneau
Contact Person: Greg Capito Phone #: 465 2664
A. Number of reports containing data (list citations below):
B. Name of manual filing system containing data: Village 3-ring binders
File arranged by: Alphabetical by Village Size of file: ~200 villages
C. Name of computer filing system containing data: None
Total estimated number of analyses: 3000-4000, about half for ground water

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	up to several/yr	~7 yrs	No	100-200	B	
Trace metals	up to several/yr	~7 yrs	NO	100-200	B	
Nutrients	very rare					
Bacteriological	Very rare					
Radioactivity	very rare to none					
Turbidity	very rare to none					
Color or odor	Very rare to none					
Organic carbon compounds:						
General (list)	very rare to none					
Specific (list)	very rare to none					

General Remarks (e.g., accessibility and organization of files): Would require substantial time to review and summarize data

~~REPORT CITATIONS:~~ Sampling was done at village water sources, which typically varied throughout the year. Information on contaminated supplies is not readily available in any summarized format. Data currently collected and for the past few years is forwarded to the Public Drinking Water Program.

Reported by: J. Munter Date: 3-17-87
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: EPA/Region X

Location: Seattle

Contact Person: Bill Bogue Phone #: (206) 442 1676

A. Number of reports containing data (list citations below): None

B. Name of manual filing system containing data: Drinking Water Program

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: STORET

Total estimated number of analyses: 400

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	VARIABLE	5 YRS	YES	50-100	C	PROVIDED BY DEC DRINKING
Trace metals	Variable	5 YRS	YES	50-100	C	WATER PROGRAM
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)	VARIABLE	5 YRS	YES	50-100	C	Chlorinated Hydrocarbons
Specific (list)						

General Remarks (e.g., accessibility and organization of files): STORET IS NOT KNOWN TO BE ACCESSIBLE IN ALASKA. AVAILABLE DATA

REPORT CITATIONS: ARE LIMITED TO SOME ALASKA PUBLIC DRINKING WATER SUPPLIES. NO GENERAL GROUND-WATER INVESTIGATION DATA ARE INCLUDED.

Reported by: J. MUNTER Date: 12-1-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: USF&WS/Environmental Contamination Activities
Location: 1011 E. Tudor Rd, Anchorage AK 99503
Contact Person: Howard Metsker Phone #: 786 3510
A. Number of reports containing data (list citations below): _____
B. Name of manual filing system containing data: Site Investigations
File arranged by: Site Name Size of file: 18 sites w/gw data see below
C. Name of computer filing system containing data: None
Total estimated number of analyses: See Comments

GROUND-WATER QUALITY DATA PARAMETERS - See Comments

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): (1) Ongoing data collection, mostly organics, at Delta-Clearwater springs since 1977. NO
[REPORT CITATIONS:] (2) Inorganics and Heavy metals collected at Kantishna Hills springs. (3) Ongoing inorganics and organics at a monitoring well at a PCB site near Swanson River in Kenai Nat. Wildlife Refuge. Other site investigations may occur during current fiscal year. [Letter (12-18-86) from Metsker states that no springs were investigated specifically for water quality as he had informed me - 1-9-87, JM] see NOTE NO

Reported by: J. Munter Date: 11/28/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503

IN REPLY REFER TO:
ES

RECEIVED
DEC 18 1986
DEC 22
Div. of Geological Survey
Eagle River

Mr. Jim Munter
Division Mining GGS
Alaska Department of Natural Resources
P.O. 772-116
Eagle River, AK 99577

Dear Jim:

Sorry for the delay in providing ground water quality investigative information per your phone request. Searching through our published reports, I find that we did not investigate any spring specifically for water quality as I previously informed you. The reports we generate are similar to the attached document. We are very much involved with surface water quality and biological sampling for contaminant accumulations in tissues, as you can readily determine. We will, in the future, be looking at several ground water sites as indicated. One of the more important sites is the polychlorinated biphenyls (PCB's) ground water monitoring well on the Kenai National Wildlife Refuge.

Sincerely,

Howard Metsker

Howard E. Metsker
Regional Coordinator
Environmental Contaminants

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: USPHS/Environmental Health and Engineering Branch
Location: 701 C STREET - ANCHORAGE 271-4727
Contact Person: DAVE G. WAHTO Phone #: 271-4727
A. Number of reports containing data (list citations below): _____
B. Name of manual filing system containing data: EHB CONSTRUCTION
File arranged by: VILLAGE Size of file: 7-DRAWERS
C. Name of computer filing system containing data: N/A
Total estimated number of analyses: 3750

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): CALL BEFORE COMING OVER SO WE CAN ARRANGE SOMEONE TO HELP YOU.

~~REPORT CITATIONS:~~

NOTES: visit to Anchorage USPHS-MANHS 12-03-86. Talked w/ Dave Wahto, Leon Anderson (design engineer) & Reid Cook (chief, design construction). Apparently responsible for about 100 wells, do initial analysis for standard drinking water parameters followed by periodic re-testing for coliforms.

Reported by: Dave G Wahto Date: 11/3/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: U.S. Dept of Transportation/Fed. Aviation Admin/Environmental Section
Location: 701 C street Anchorage
Contact Person: Daryl Reindl Phone #: 271-5789
A. Number of reports containing data (list citations below): None
B. Name of manual filing system containing data: Airway Facilities (see note below)
File arranged by: _____ Size of file: _____
C. Name of computer filing system containing data: None
Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
Most FAA data are submitted to DEC as part of public drinking water supply programs. Some site-specific well and well log info is available, but much of the older information has been thrown out.

[REPORT CITATIONS]

Reported by: Jim Munter Date: 10-29-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: U.S. ARMY

Location: Fort Richardson Alaska

Contact Person: Catharine Benediktsson Phone #: 862-0188

A. Number of reports containing data (list citations below):

B. Name of manual filing system containing data: See note below

File arranged by: Size of file:

C. Name of computer filing system containing data:

Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):
Public water supply analyses and landfill data from Fts. Wainwright, Richardson and Greeley are submitted to DEC. Information from the U.S. Army Installation Restoration Program may be available, but only upon written request to:
Colonel Alexander Johnston
HQ 6th Infantry Division (Light)
AFVR-DE, Fort Richardson, AK 99505

REPORT CITATIONS:

Reported by: Jim Munter Date: 10-29-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: U.S. Air Force/HQ Alaska Air Command/Environmental Planning
Location: Elmendorf AFB, Anchorage, AK, Bldg 6-900
Contact Person: James (Jim) Hostman Phone #: 552-4151
A. Number of reports containing data (list citations below): 7
B. Name of manual filing system containing data: No public file - see "Remarks"
File arranged by: — Size of file: —
C. Name of computer filing system containing data: —
Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Water Quality data are submitted to DEC Drinking water program. IRP data are contained in reports below.
REPORT CITATIONS: (All reports are submitted to DEC regional offices)
1. IRP (Air Force) Management guidance 2. Phase I report, Northern Region (DEC/NR) 3. Phase I report Skagway (DEC/SC) 4. Phase I report, Elmendorf AFB (DEC/SC) 5. Phase I report, Eielson AFB (DEC/NR) 6. Phase I report, Southcentral Region (DEC/SC) 7. Phase II, stage I report, Elmendorf AFB (DEC/SC) 8. Phase II, stage I report, Eielson AFB (DEC/NR)

Reported by: Jim Munter Date: 10-24-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: UAF/Agriculture & Forestry Experiment Station
Location: Palmer Alaska
Contact Person: Chien-Lu Ping Phone #: 745-3257
A. Number of reports containing data (list citations below):
B. Name of manual filing system containing data: Mat-Su Manure Pit wells
File arranged by: site name Size of file: 6 wells + farmers wells
C. Name of computer filing system containing data: None
Total estimated number of analyses: 50

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	6/yr	1 yr	No	16	B	pH, conductivity, Ca, Mg, K, Na
Trace metals	None					
Nutrients	6/yr	1YR	No	16	B	Nitrate & Ammonium
Bacteriological	None					
Radioactivity	None					
Turbidity	None					
Color or odor	None					
Organic carbon compounds:						
General (list)	None					
Specific (list)	None					

General Remarks (e.g., accessibility and organization of files): Data also provided to DEC and SCS. Three sites were monitored.

REPORT CITATIONS:

Reported by: Tim Munter Date: 12-12-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: UAF/Inst. of Northern Engineering/Water Resources Center
Location: Fairbanks AK
Contact Person: Don Schell Phone #: 474-7115
A. Number of reports containing data (list citations below): None
B. Name of manual filing system containing data: Nitrate Project file
File arranged by: Size of file: 3-4 wells
C. Name of computer filing system containing data: None
Total estimated number of analyses: 40

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients	6/year	2 years	yes	3-4	B	Nitrates only
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Study is being done by a graduate student to use N^{15}/N^{14} to try to decipher source of nitrates

REPORT CITATIONS:

Reported by: J. Munter Date: 11/28/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: Alaska Dept. of Fish and Game/Div. of Fisheries Rehab, Enhancement & Dev. (FRED)
Location: 333 Raspberry Rd., Anchorage
Contact Person: Keith Pratt Phone #: 267 2169
A. Number of reports containing data (list citations below): A few
B. Name of manual filing system containing data: Fish Hatchery files
File arranged by: Fish Hatchery Size of file: < 1 drawer/hatchery
C. Name of computer filing system containing data: None
Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	usually once	from startup	No	9	B	
Trace metals	usually once	from startup	No	9	B	
Nutrients	some	from startup	No	a few	B	
Bacteriological	some	from startup	No	a few	B	
Radioactivity	None					
Turbidity	some	from startup		a few	B	
Color or odor	Not usually					
Organic carbon compounds:						
General (list)	None					
Specific (list)	None					

General Remarks (e.g., accessibility and organization of files): Files are maintained at fish hatcheries with GW sources: Big Lake, Ft. Richardson, Elmendorf, Kotzebue (Sikusuilaq), Cold Bay (Russell Creek), Trail Lakes (near Seward), Crooked Creek (near Kasilof), Clear, Gulkana

REPORT CITATIONS: → Reports with data are intermixed with numerous other reports and are not catalogued or readily identifiable or retrievable.

Reported by: Jim Munter Date: 10/20/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

MEMORANDUM **STATE OF ALASKA**

TO: Dave Daisy
Regional Supervisor
FRED DIV Anchorage

DATE: October 21,1986

PHONE: 267-2169

RECEIVED
OCT 23 1986
Div. of Geological Survey
Eagle River

FROM: Keith Pratt
Regional Hatchery Manager
Anchorage

SUBJECT: Request for information about Hatchery Ground Water Data.

Yesterday afternoon received a call from Jim Munter (sp) of DNR, Mining and Geology (P.O. Box 772116, Eagle River, 99577 (668-3555)) requesting information about our hatcheries and data on ground water. Jim is putting together info on where information on ground water can be found in preparation for development of strategy aimed at protecting Alaskan Ground Water.

This memo serves to provide Jim with requested information and inform you of the request.

Attached is the Hatchery Address List with mailing address and phone numbers of all state hatcheries. Each hatchery maintains on-site water chemistry and flow data. Feasibility studies of newer hatcheries included water data, these documents are at the hatcheries as well as at the Regional Office (Anchorage or Juneau).

As you know we do not yet have database for this important information. Since most hatcheries now have computers I hope we can start accumulating data into effective databases.

The type of information available varies greatly from facility to facility. Flows, especially from wells or springs are normally recorded. Quality information varies greatly but temperature, dissolved oxygen, total dissolved gases are usually recorded now. Metals, nutrients, carbon compounds and other parameters are only routinely monitored in early feasibility and initial operation phases.

Below is a quick list of hatcheries and water supply(s)

		Water supplies		
Hatchery	Community	Primary	Secondary	Domestic
Central Region, Anchorage				
Big Lake	Wasilla	Wells	Meadow Cr	Well
Sikusuilaq	Kotzebue	Spring	Spring	Spring
Clear	Fairbanks	Wells	Wells	Well
Ft. Richardson	Anchorage	Wells	Army Wells	City
Trail Lakes	Moose Pass	Wells	Wells	Well
Gulkana	Paxon	Spring	None	Well
Russell Cr	Cold Bay	Dug"WEll"	Creek	Well
Tutka	Homer	Creek	None	Stream
Crooked Creek	Kasilof	Creek	Well	Well
Elmendorf	Anchorage	Ship Cr	Well	City
Cannery Creek	Whittier	Lake	None	Lake
Main Bay	Whittier	Lake	None	Lake
Kitoi Bay	Kodiak	Lake	None	Lake

Southeast Region, Juneau				
Beaver Falls	Ketchikan	Lake	None	Lake
Deer Mtn.	Ketchikan	Lake	Creek	City
Hidden Falls	Sitka	Lake	None	Lake
Snettisham	Juneau	Lake	None	Project
Klawock	Klawock	Lake	Lake	City
Crystal Lake	Petersburg	Lake	None?	?

Let us discuss water data handling, a condition of permits normally requires maintaining flow records. I have ask the six hatcheries I supervise to include flow, dissolved oxygen, and total diaolved gases in the weekly reports. I wish to extend this data reporting to all facilities. Perhaps this could be the beginning of are water information computer data base. As I work on hatchery effluent permit project I am coming to appreciate the importance of a good water use data base.

KEITH M. PRATT
REGIONAL HATCHERY MANAGER

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
FISHERIES, REHABILITATION,
ENHANCEMENT & DEVELOPMENT DIVISION

333 RASPBERRY ROAD
ANCHORAGE, ALASKA 99502
SWITCHBOARD 344-0541
DESK PHONE (907) 267-2169

Dan Moore, Manager
Big Lake Hatchery
PO Box 520509
Big Lake AK 99652-0509
PHONE: (907) 892-6816

Clayton Brown, Manager
Russell Creek Hatchery
PO Box 50
Cold Bay AK 99571-0095
PHONE: (907) 532-2373

Terry Ellison, Manager
Cannery Creek Hatchery
PO Box 788
Whittier AK 99693-0788
NO PHONE AVAILABLE

Peter Rob, Manager
Sikusuilaq Springs Hatchery
PO Box 686
Kotzebue AK 99752-0686
PHONE: (907) 485-2160

Dave Parks, Manager
Clear Hatchery
PO Box 40219
Clear AK 99704
PHONE: (907) 582-2964

Bill Gaylor, Manager
Trail Lakes Hatchery
PO Box 49
Moose Pass AK 99631-0049
PHONE: (907) 288-3606

Bill Rosenbalm, Manager
Tutka Hatchery
c/o FRED Division
3298 Douglas St.
Homer AK 99603
PHONE: (907) 235-8486

Darrell Keifer, Manager
Elmendorf Hatchery
716 Steel Street
Anchorage AK 99501
PHONE: (907) 274-0065

Ron Davis, Manager
Main Bay Hatchery
Falls Bay via Cordova
Cordova AK 99574
NO PHONE AVAILABLE

Bob Och, Manager
Crooked Creek Hatchery
PO Box 430
Kasilof AK 99610-0430
PHONE: (907) 262-4159

Gary Wall, Manager
Ft. Richardson Hatchery
PO Box 5-337
Ft. Richardson AK 99505
PHONE: (907) 428-1347

Tim Joyce, Manager
Kitoi Bay Hatchery
Kitoi Bay AK 99697
PHONE: (907) 486-6559

Dave Bright, Manager
Beaver Falls Hatchery
c/o FRED Division
415 Main Street, Room 318
Ketchikan AK 99901
PHONE: (907) 225-6950

Dave Bright, Manager
Deer Mountain Hatchery
c/o FRED Division
415 Main Street, Room 318
Ketchikan AK 99901
PHONE: (907) 225-6760

James Billi, Manager
Crystal Lake Hatchery
PO Box 1088
Petersburg AK 99833-1088
PHONE: (907) 772-4772

Jim Cochran, Manager
Hidden Falls Hatchery
PO Box 510
Sitka AK 99835-0510
PHONE: (907) 788-3215

Don Tripp, Manager
Snettisham Hatchery
PO Box 20
Douglas AK 99824-0020
PHONE: (907) 586-3838

Steve Hansen, Manager
Klawock Hatchery
PO Box 101
Klawock AK 99925-0101
PHONE: (907) 755-2232

NONCONVENTIONAL HATCHERIES:

Lorne White, Biologist
Karluk Eyed Egg Project
c/o FRED Division
211 Mission Road
Kodiak AK 99615
PHONE: (907) 486-4791

Ken Roberson, Biologist
Gulkana Stream Side Incubation Project
c/o FRED Division
PO Box 47
Glennallen AK 99588-0047
PHONE: (907) 822-5520

Irv Brock
Broodstock Development Center
PO Box 5-337
Ft. Richardson AK 99505
PHONE: 428-1348

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DCED/Oil and Gas Conservation Commission

Location: 3001 Porcupine St. Anchorage AK

Contact Person: Bill Barnwell Phone #: 279 1433

A. Number of reports containing data (list citations below): _____

B. Name of manual filing system containing data: Subsurface injection of oil field fluids

File arranged by: Oil field Size of file: 40-50 fields

C. Name of computer filing system containing data: _____

Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds:						
General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): Oil-field nonhazardous wastes and liquids are injected into non-drinking water aquifers of oil-producing formations (for secondary or tertiary oil recovery efforts). This activity is regulated by OAGC under delegation from EPA. Permit applications from industry contain information about receiving formations and their fluids that may be confidential.

REPORT CITATIONS:

Reported by: Jim Munter Date: 12-12-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DNR/ D66S/ Water Resources section
Location: Fish Hatchery Road, Eagle River, Alaska (P.O. Box 772116)
Contact Person: Jim Munter Phone #: 688-3555

A. Number of reports containing data (list citations below): 0

B. Name of manual filing system containing data: Site Studies, 1978-86, Dearborn/Howland
File arranged by: Site name/Alphabetical Size of file: 1 Drawer

C. Name of computer filing system containing data: none

Total estimated number of analyses: <100

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	once	Variable	no	10-50	B	
Trace metals	once	variable	no	10-20	B	
Nutrients	once	variable	no	<20	B	
Bacteriological	once	variable	no	<20	B	
Radioactivity	probably none					
Turbidity	unknown					
Color or odor	unknown					
Organic carbon compounds:						
General (list)	unknown					
Specific (list)	unknown					

General Remarks (e.g., accessibility and organization of files): File includes water availability studies, geophysical studies and some contamination studies.

REPORT CITATIONS: About 17 files contain groundwater quality information, most of which is not published.

Reported by: Jim Munter Date: 10-22-86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DNR/Division of Mining

Location: 3601 "C" Street Anchorage

Contact Person: Sam Dunaway Phone #: 561 2020

A. Number of reports containing data (list citations below): _____

B. Name of manual filing system containing data: Coal mine permit applications

File arranged by: name Size of file: 2 applications (See below)

C. Name of computer filing system containing data: None

Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files): _____

REPORT CITATIONS: Permit applications have been made for the Usibelli Coal mine and the Diamond-Shamrock project

Reported by: Jim Munter Date: 3-17-87

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: DOT&PF/Planning Section

Location: 4111 Aviation Drive, Anchorage

Contact Person: John Hildebrandt Phone #: 243 1111

A. Number of reports containing data (list citations below): See below

B. Name of manual filing system containing data: See below

File arranged by: _____ Size of file: _____

C. Name of computer filing system containing data: _____

Total estimated number of analyses: _____

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals						
Trace metals						
Nutrients						
Bacteriological						
Radioactivity						
Turbidity						
Color or odor						
Organic carbon compounds: General (list)						
Specific (list)						

General Remarks (e.g., accessibility and organization of files):

All information would be contained in "Inventory and condition survey of public facilities," which contains about 700-800 volumes, each about an inch thick. Groundwater quality data are probably scanty, and are easier to obtain from DEC public water system files.

~~REPORT CITATIONS:~~

Reported by: Jim Munter Date: 11/21/86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: MOA/DHHS/Water Quality Section

Location: 825 L Street Anchorage

Contact Person: Mark Little Phone #: 264 6742

A. Number of reports containing data (list citations below): USGS Annual report

B. Name of manual filing system containing data: Shallow Observation well files

File arranged by: Station Name Size of file: 39 wells

C. Name of computer filing system containing data: None

Total estimated number of analyses:

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	2/year	2 years	yes	39	B	pH Cl^- and alkalinity only
Trace metals	NONE					
Nutrients	2/YEAR	2 YEARS	yes	39	B	NO_3^-, NO_2, Ortho-P
Bacteriological	2/year	2 YEARS	yes	39	B	Fecal Coliform
Radioactivity	NONE					
Turbidity	NONE					
Color or odor	NONE					
Organic carbon compounds:						
General (list)	NONE					
Specific (list)	NONE					

General Remarks (e.g., accessibility and organization of files): Analyses are done by USGS and data are also available through them.

REPORT CITATIONS: An additional 36 wells are scheduled to be drilled this winter

Reported by: Jim Munter Date: 11-24-86

Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

SURVEY OF GROUND-WATER QUALITY DATA AVAILABILITY IN ALASKA
Department of Natural Resources, Division of Mining and Geology
in cooperation with Department of Environmental Conservation

Organization Name: MOA/DHHS/Env. Services/On-site services
Location: 825 L street Anchorage
Contact Person: Steve Morris Phone #: 264 6742
A. Number of reports containing data (list citations below): NONE
B. Name of manual filing system containing data: On-Site files
File arranged by: Subdivision-Lot-Block Size of file: 9000 files
C. Name of computer filing system containing data: Microfiche only
Total estimated number of analyses: 7000

GROUND-WATER QUALITY DATA PARAMETERS

Parameter	Frequency of sampling	Period of record	Sampling ongoing?	Number of sites sampled	Source of data (A/B/C)	Remarks
Common dissolved minerals	None					
Trace metals	None					
Nutrients	Rare	recent	No	~50	A	Nitrates only
Bacteriological	At sale of House	1969-1986	No	~7000	A	
Radioactivity	NONE					
Turbidity	NONE					
Color or odor	NONE					
Organic carbon compounds:						
General (list)	NONE					
Specific (list)	NONE					

General Remarks (e.g., accessibility and organization of files): Some well log and static water level data are also contained in files.

~~REPORT CITATIONS:~~ Files are generally organized and accessible, but cumbersome, since lots of information about a lot may be mixed with key ground water data

Reported by: Jim Munter Date: 11/24/86
Return form to: DNR/DMG, P.O. Box 772116, Eagle River, Alaska 99567

PART III. REPORTS CONTAINING GROUND-WATER QUALITY DATA

Explanation

All reports listed contain ground-water quality data and are publicly available. Other reports exist that contain general ground-water data such as well-log or aquifer-test data, but are not included. Reports are divided into statewide, regional, and subregional categories, depending on report content. Region and subregion boundaries are shown in figure 1.

Report Categories

Statewide
- Northern region
- Southeast region
- Southwest region
- Southcentral region
  - Municipality of Anchorage subregion
  - Copper River Basin subregion
  - Kenai Peninsula subregion
  - Matanuska-Susitna Borough subregion and Miscellaneous Southcentral subregion (reports not listed under other subregion headings)

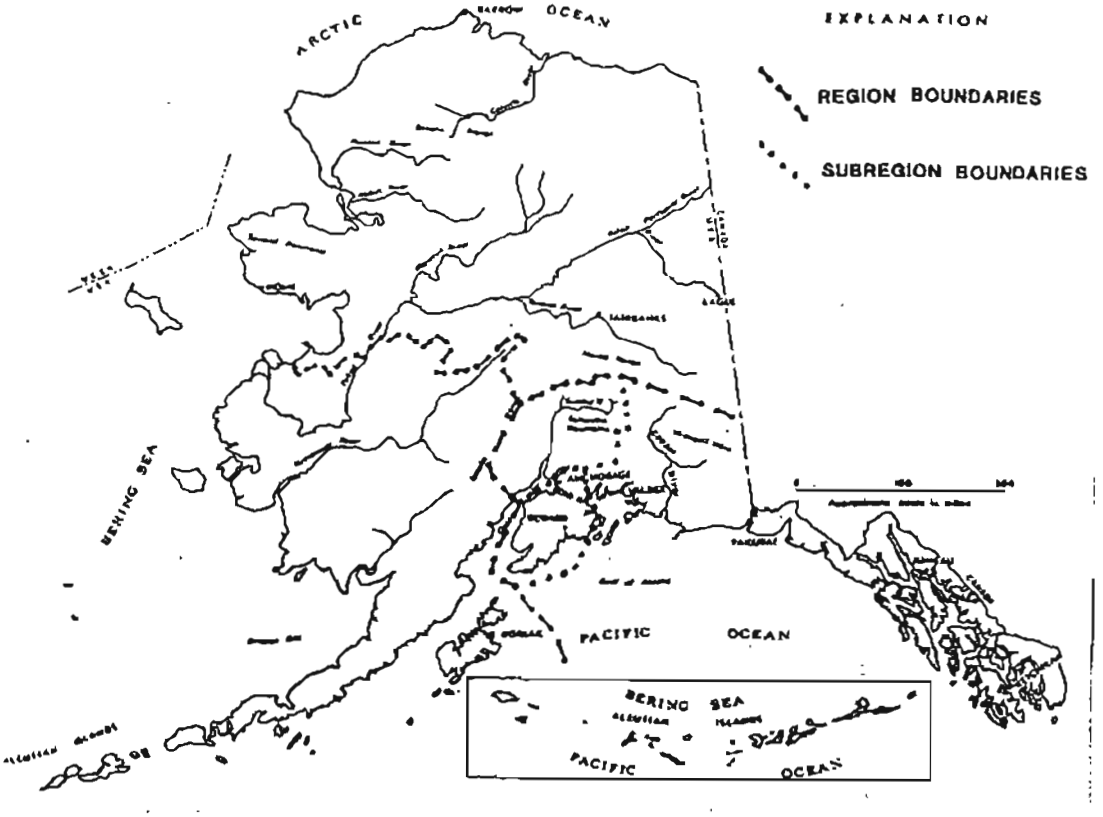

Figure 1. Locations of region and subregion boundaries.

Statewide

Alaska Department of Environmental Conservation, 1980, Evaluation and recommendations for solid waste landfill monitoring program: Juneau, Alaska, 25 p.

Alaska Department of Environmental Conservation, 1984, Village sanitation in Alaska: Juneau, Alaska, 213 p.

Atkinson, S.C., 1981, Completion report, injection well inventory and aquifer mapping feasibility study: Anchorage, Alaska, University of Alaska Arctic Environmental Information and Data Center, 111 p.

_____, 1981, A preliminary report on the potential of oil and gas production and EPA Class V injection wells contaminating underground sources of drinking water in Alaska, report for U.S. Environmental Protection Agency, Region X: Anchorage, Alaska, University of Alaska Arctic Environmental Information and Data Center, 32 p.

Balding, G.O., 1976, Water availability, quality, and use in Alaska. U.S. Geological Survey Open-file Report 76-513, 236 p.

Cederstrom, D.J., 1952, Summary of ground-water development in Alaska, 1950: U.S. Geological Survey Circular 169, 37 p.

Cederstrom, D.J., Johnston, P.M., and Subitzky, S., 1953, Occurrence and development of ground water in permafrost regions: U.S. Geological Survey Circular 275, 30 p.

Donaldson, D.E., 1972, The distribution of boron in Alaskan waters: in Science in Alaska, 23rd Alaska Science Conference, proceedings (abs.): American Association for the Advancement of Science, Alaska Division, p. 80.

Dwight, L.P., 1981, An overview of Alaska communities utilizing underground sources of drinking water: Anchorage, Alaska, University of Alaska Arctic Environmental Information and Data Center, 47 p.

Environmental Services Limited, 1979, Waste oil in Alaska: Unpublished report prepared for Alaska Department of Environmental Conservation, 72 p.

Feulner, A.J., Childers, J.M., and Norman, V.W., 1971, Water resources of Alaska: U.S. Geological Survey Open-file Report, 60 p.

Kim, S.W., Johnson, P.R., and Murphy, R.S., 1969, A groundwater quality summary for Alaska: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR-10, 32 p.

Lohr, E.W., 1957, Chemical charater of public water supplies of the larger cities of Alaska, Hawaii and Puerto Rico, 1954: U.S. Geological Survey Water-supply Paper 1460-A, 39 p.

Murphy, R.S., 1973, Water quality in Alaskan campgrounds: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR 38, 108 p.

Myers, H.A., and Boatman, E.S., 1983, Asbestos levels in Alaskan drinking water, a preliminary study, in Managing water resources for Alaska's development; proceedings: American Water Resources Association, Alaska Section, p. 11-1 - 11-14.

Peale, A.C., 1886, Lists and analyses of the mineral springs of the United States (a preliminary study): U.S. Geological Survey Bulletin 32, 235 p.

Stearns, N.D., Stearns, H.T., and Waring, G.A., 1937, Thermal springs in the United States: U.S. Geological Survey Water-Supply Paper 697-B, p. 59-206.

Tetra Tech, Inc., 1984, Preliminary assessment of 45 potential hazardous waste sites in the state of Alaska; prepared for Alaska Department of Environmental Conservation: Bellevue, Washington, unpublished report.

Turner, D.L., Forbes, R.B., Alabanese, M.D., Macbeth, J., Lockhart, A.B., and Seed, S.M., 1980, Geothermal energy resources of Alaska: Fairbanks, Alaska, University of Alaska Geophysical Institute Report UAGR-279, 19 p., scale 1:250,000, 2 sheets.

U.S.Geological Survey, 1976, Water resources data for Alaska--Water year 1975: U.S. Geological Survey Water-data Report AK-75-1, 410 p.

_____,1977, Water resources data for Alaska--water year 1976: U.S. Geological Survey Water-data Report AK-76-1, 401 p.

_____, 1978, Water resources data for Alaska--water year 1977: U.S. Geological Survey Water-data Report AK-77-1, 439 p.

_____, 1979, Water resources data for Alaska--water year 1978: U.S. Geological Survey Water-data Report AK-78-1, 425 p.

_____, 1980, Water resources data for Alaska--water year 1979: U.S. Geological Survey Water-data Report AK-79-1, 365 p.

_____, 1981, Water resources data for Alaska--water year 1980: U.S. Geological Survey Water-data Report AK-80-1, 373 p.

_____, 1982, Water resources data for Alaska--water year 1981: U.S. Geological Survey Water-data Report AK-81-1, 395 p.

_____, 1983, Water resources data for Alaska--water year 1982: U.S. Geological Survey Water-data Report AK-82-1, 363 p.

_____, 1984, Water resources data for Alaska--water year 1983: U.S. Geological Survey Water-data Report AK-83-1, 357 p.

_____, 1985, Water resources data for Alaska--water year 1984: U.S. Geological Survey Water-data Report AK-84-1, 350 p.

_____, 1986, Water resources data for Alaska--water year 1985: U.S. Geological Survey Water-data Report AK-84-1, 328 p.

University of Alaska Arctic Environmental Information and Data Center, 1981, Summary of injection well activity, prepared for U.S. Environmental Protection Agency, Region X: Anchorage, Alaska, 22 p.

Waring, G.A. 1917, Mineral springs of Alaska, with a chapter on the chemical character of some surface water of Alaska by R.B. Dole and A.A. Chambers: U.S. Geological Survey Water-supply Paper 418, 114 p.

_____, 1965, Thermal springs of the United States and other countries of the world--A summary (revised by R.R. Blankenship and Ray Bentall): U.S. Geological Survey Professional Paper 492, 383 p.

Williams, J.R., 1970, Ground water in the permafrost regions of Alaska: U.S. Geological Survey Professional Paper 696, 83 p.

Williams, J.R., and Waller, R.M., 1963, Ground water occurrence in permafrost regions of Alaska, in Permafrost International Conference, proceedings, Lafayette, Indiana: Washington, D.C., National Academy of Science, National Research Council Publication 1287, p. 159-164.

Northern Region

Alaska Department of Environmental Conservation, 1984, Preliminary engineering study, outer Fairbanks watering point, Fairbanks, Alaska: Unpublished report prepared by Village Safe Water Program, Juneau, Alaska, 23 p.

Alaska Department of Natural Resources, 1983, Tanana basin area plan, water resources element, phase I, resource inventory: unpublished report, unpaginated.

Anderson, G.S., 1970, Hydrological reconnaissance of the Tanana basin, central Alaska: U.S. Geological Survey Hydrologic Investigations Atlas HA-319, 4 sheets.

Arnow, G.M., and Hubbs, G.L., 1962, Characteristics of surface and ground waters in selected villages of Alaska, part II: drainage of the Tanana River, Upper Yukon River, Brooks Range, and Arctic Slope: Anchorage, Alaska, U.S. Public Health Service, Arctic Health Research Center.

Barker, J.C., and Clautice, K.H., 1977, Anomalous uranium concentrations in artesian springs and stream sediments in the Mount Prindle Area, Alaska: U.S. Bureau of Mines Open-file Report 130-77, 19 p.

Black, R.F., 1956, Permafrost, water-supply, and engineering geology of Point Spencer spit, Seward Peninsula, Alaska: Arctic, v. 11, no. 2, p. 108-116.

Cederstrom, D.J., 1961, Origin of a salt-water lens in permafrost at Kotzebue, Alaska: Geological Society of America Bulletin, v. 72, no. 9, p. 1427-1432.

_____, 1963, Ground-water resources of the Fairbanks area, Alaska: U.S. Geological Survey Water-supply Paper 1590, 84 p.

Cederstrom, D.J., and Péwé, T.L., 1960, Ground-water data for Fairbanks, Alaska: U.S. Geological Survey Hydrologic-data Report no. 9, unpaginated.

Childers, J.M., Sloan, C.E., and Meckel, J.P., 1973, Hydrologic reconnaissance of streams and springs in eastern Brooks Range, Alaska - July 1972: U.S. Geological Survey Open-File Report, 25 p.

Childers, J.M., Kernodle, D.R., and Loeffler, R.M., 1979, Hydrologic reconnaissance of western Arctic Alaska, 1976 and 1977: U.S. Geological Survey Open-file Report 79-699, 68 p.

Dames and Moore, 1986, Installation Restoration Program, phase II, confirmation/quantification, stage 1, final report for Eielson Air Force Base, Alaska, Alaskan Air Command, March 11, 1986: Brooks AFB, Texas, U.S. Air Force Occupational and Environmental Health Laboratory, 51 p.

Dowl Engineers and Crowley Environmental Services, Inc., 1986, Fuel spill assessment study, UIC/NARL Facility, Barrow, Alaska: Unpublished report for Ukpeagvik Inupiat Corporation, Barrow, Alaska, 92 p.

Engineering-Science, 1985, Installation Restoration Program, phase I, records search, AAC-Northern Region, Galena AFS, Campion AFS, Cape Lisbourne AFS, Fort Yukon AFS, Indian Mountain AFS, Kotzebue AFS, Murphy Dome AFS, and Tin City AFS: Tyndall AFB, Florida, U.S. Air Force AFESC/DEV, and Elmendorf AFB, Alaska, U.S. Air Force AAC/DEPV, unpaginated.

Environmental Science and Engineering, Inc., 1983, Installation assessment of the headquarters, 172nd Infantry Brigade (Alaska), Fort Wainwright, Alaska, report no. 328B, prepared for Commander, Headquarters, 172d Infantry Brigade (Alaska), Fort Richardson, Alaska, and U.S. Army Toxic and Hazardous Materials Agency, Assessments Division, Aberdeen Proving Ground, Maryland: Anchorage, Alaska, unpaginated.

Environmental Science and Engineering, Inc., 1983, Installation assessment of the headquarters, 172nd Infantry Brigade (Alaska), Fort Greely, Alaska, report no. 328C, prepared for Commander, Headquarters, 172d Infantry Brigade (Alaska), Fort Richardson, Alaska, and U.S. Army Toxic and Hazardous Materials Agency, Assessments Division, Aberdeen Proving Ground, Maryland: Anchorage, Alaska, unpaginated.

Feulner, A.J., 1961, Data on wells at Ladd Air Force Base, Alaska: U.S. Geological Survey Hydrologic-data Report no. 13, 41 p.

Feulner, A.J., and Schupp, R.G., 1963, Seasonal changes in the chemical quality of shallow ground water in Northwestern Alaska, Art. 52, in Short papers in geology and hydrology: Geological Survey Research, 1963: U.S. Geological Survey Professional Paper 475-B, p. B189-B191.

_____, 1964 [1965], Temperature and chemical quality of water from a well drilled through permafrost near Bethel, Alaska, in Geological Survey Research, 1964: U.S. Geological Survey Professional Paper 501-D, p. D144-D148.

Feulner, A.J., and Williams, J.R., 1967, Development of a ground-water supply at Cape Lisburne, Alaska, by modification of the thermal regime of permafrost, in Geological Survey Research 1967: U.S. Geological Survey Professional Paper 575-B, p. B199-B202.

Flynn, D.M., 1985, Hydrology and geochemical processes of a sub-arctic landfill, Fairbanks, Alaska--basic data: U.S. Geological Survey Open-file Report 85-195, 41 p.

Hawkins, D.B., 1976, Environmental path of arsenic in groundwater: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR-77, 7 p.

Hawkins, D.B., Forbes, R.B., Hok, C.I, Dinkel, Donald, 1982, Arsenic in the water, soil, bedrock, and plants of the Ester Dome area of Alaska: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR-103, 27 p.

Hawkins, D.B., and Glover, D.M., 1982, Hydrogeochemistry of the Caribou-Poker Creeks research watershed: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR-102, 82 p.

Hazardous Materials Technical Center, 1986, Statement of work for phase IV-A remedial action plan, Installation Restoration Program, Eielson Air Force Base, Alaska: Tyndall Air Force Base, Florida, Air Force Engineering Service Center, 60 p.

Hopkins, G.C., and Maxwell, K.F., 1985, Arsenic, nitrate, iron, and hardness in ground water, Goldstream Road, Yankovich Road, and Murphy Dome Road areas (T.1N., R.2W.FM), Fairbanks, Alaska: U.S. Geological Survey Open-file Report 85-341, 1 sheet.

Iskandar, I.K., Osterkamp, T.E., and Harrison, W.D., 1978, Chemistry of interstitial water from subsea permafrost, Prudhoe Bay, Alaska, in Proceedings, third international conference on permafrost, Edmonton, Alberta, Canada: National Research Council of Canada, p. 93-98.

Janssen, John, undated, Alaska Department of Environmental Conservation on scene coordinator's interim report, Kotzebue, Alaska underground fuel oil spill: Fairbanks, Alaska, Department of Environmental Conservation, unpaginated.

Janssen, J.H., 1985, Federal on scene coordinator's final revised report, Nome, Alaska underground gasoline spill clean up and investigation: Unpublished report prepared for U.S. Environmental Protection Agency, Emergency Response Section, Region X, unpaginated.

Johnson, Paula, Wilcox, D.E., Morgan, W.D., Merto, Josephine, and McFadden, Ruth, 1978, Arsenic nitrate, iron, and hardness in ground water, Fairbanks area, Alaska: U.S. Geological Survey Open-file Report 78-1034, 2 sheets.

Johnson, R.A., and Dreyer, L.D., 1977, North Slope Borough water study, A background for planning: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR-81, 115 p.

Kachadoorian, Reuben, Lachenbruch, A.H., and Allen, R.V., 1961, Geologic investigation in support of Project Chariot, phase III, in the vicinity of Cape Thompson, northwestern Alaska, preliminary report: U.S. Atomic Energy Commission Office of Technical Information, 103 p.

Krumhardt, A.P., 1980, Arsenic, nitrate, iron, and hardness in ground water, Chena Ridge vicinity, Fairbanks, Alaska: U.S. Geological Survey Open-file Report 80-49, scale 1:24,000, 1 sheet.

_____, 1982, Arsenic, nitrate, iron, and hardness in ground water, Chena Hot Springs Road, Steele Creek Road, and Gilmore Trail areas (T.1N., R.1E., FM) Fairbanks, Alaska: U.S. Geological Survey Open-file Report 82-356, 2 sheets.

_____, 1982, Hydrologic information for land-use planning, Badger Road area, Fairbanks, Alaska: U.S. Geological Survey Water-Resources Investigations 82-4097, 14 p.

Lamar, W.L., 1966, Chemical character and sedimentation of the waters, in Environment of the Cape Thompson region, Alaska: U.S. Atomic Energy Commission Division of Technical Information, p. 133-148.

Linck-Thompson, 1982, Fort Yukon, Alaska, water and sewer study: Unpublished report for Charlie and Associates, unpaginated.

Mattson, R.S., 1985, Comprehensive environmental health survey of Tanana Elderly Health Center, Tanana, Alaska: U.S. Public Health Service, Alaska Area Native Health Service, 3 p.

McCrum, M.A., 1985, A chemical mass balance of the Ester Creek and Happy Creek watersheds on Ester Dome, Alaska: University of Alaska, Fairbanks, Master's Thesis, 98 p.

Montgomery, James M., Consulting Engineers, Inc., 1984, Hydrogeologic evaluation and aquifer test analysis: Unpublished report for Municipal Utilities System, Fairbanks, Alaska, 12 p.

Motyka, R.J., Forbes, R.B., and Moorman, M.A., 1980, Geochemistry of Pilgrim Springs thermal waters, in A geological and geophysical study of the geothermal energy potential of Pilgrim Springs, Alaska: Fairbanks, Alaska, University of Alaska Geophysical Institute Report UAG R-271, 165 p.

Openshaw, Lily-Ann, Gandy, P.A., Luecker, E.B., Accardi, John, Dodohara, H.A., and Broughton, Jerald, 1983, Initial assessment study, Naval Arctic Research Laboratory, Point Barrow, Alaska UIC N65226: Port Hueneme, California, Naval Energy and Environmental Support Activity, Naval Assessment and Control of Installation Pollutants Department, unpaginated.

Peterson, L.A., and Associates, Shannon and Wilson, Inc., and Northern Testing Laboratories, Inc., 1981, Water resources investigation of the Nenana agricultural project area: Unpublished report for Alaska Department of Natural Resources Division of Forest, Land, and Water Management, 35 p.

Péwé, T.L., and Bell, J.W., 1976a, Map showing ground-water conditions in the Fairbanks D-2 NW Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field-Studies Map MF668-B, scale 1:24,000, 1 sheet.

_____, 1976b, Map showing ground-water conditions in the Fairbanks D-2 SE Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field-Studies Map MF669-B, scale 1:24,000, 1 sheet.

_____, 1976c, Map showing ground-water conditions in the Fairbanks D-2 NE Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field-Studies Map MF670-B, scale 1:24,000, 1 sheet.

_____, 1976d, Map showing ground-water conditions in the Fairbanks D-1 SW Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field-Studies Map MF671-B, scale 1:24,000, 1 sheet.

Péwé, T.L., and Bell, J.W., 1976, Map showing ground-water conditions in the Fairbanks D-2 SW quadrangle, Alaska: U.S. Geological Survey Miscellaneous Investigations I-829-C, scale, 1:24,000, 1 sheet.

R & M Consultants, Inc., and Arctic Environmental Engineers, 1975, Ground water leachate survey, Fairbanks sanitary landfill, prepared for Fairbanks North Star Borough: Anchorage, Alaska, 41 p.

Richter, D.H., Lamarre, R.A., and Donaldson, D.E., 1973, Soda Creek springs - Metamorphic waters in the eastern Alaska Range: U.S. Geological Survey Journal of Research, v. 1, no. 5, p. 523-528.

Sherman, R.G., 1973, A groundwater supply for an oil camp near Prudhoe Bay, Arctic Alaska, in Permafrost, Second International Conference, North American contribution: Washington, D.C., National Academy of Sciences, p. 469-472.

Smith, W.W., 1974, Ground water quality effects on domestic water utilization: Fairbanks, Alaska, University of Alaska Institute of Water Resources Report IWR 48, 149 p.

Straughn, R.O., 1972, The sanitary landfill in the sub-Arctic: Arctic, v. 25, no. 1, p. 40-48.

Tisdel, F.W., 1964, Water supply from ground water sources in permafrost areas of Alaska, in Science in Alaska, 1963, 14th Alaska Science Conference, proceedings: American Association for Advancement of Science, Alaska Division, p. 113-124.

Tryck, Nyman, and Hayes, 1975, Resources for planning-comprehensive development plan: Fairbanks North Star Borough, unpaginated.

Tryck, Nyman, and Hayes, and Shannon and Wilson, Inc., 1986, Hazardous waste site investigation, Geist Road extension project RS-RRS-M-0005 (52), adjacent to Earth Movers of Fairbanks, CERCLIS no. AK-DO4998327, Prepared for Alaska Department of Transportation and Public Facilities: Anchoarage, Alaska, unpaginated.

_____, 1986, Hazardous waste site investigation, Parks Highway project F-035-6 (11), adjacent to Alaska Battery Enterprises, CERCLIS no. AK-DO4904215, Prepared for Alaska Department of Transportation and Public Facilities: Anchorage, Alaska, unpaginated.

Turner, D.L., Forbes, R.B., Wescott, E.M., Kienle, J., Osterkamp, T., Swanson, S., Hawkins, D., Harrison, W., Gosink, J., Kline, J.T., Motyka, R.J., Reger, R.D., and Moorman, M.A., 1980, Summary of results of a geological and geophysical investigation of the geothermal energy potential of the Pilgrim Springs area, Alaska: Geothermal Resources Council Transactions, v. 4, p. 93-95.

URS Engineers, 1983, Evaluation of on-site water supplies to on-site septic tanks: unpublished report for City of Anderson, Anchorage, Alaska, unpaginated.

Usibelli Coal Mine, Inc., 1983, Poker Flats Mine permit application, volume III: Unpublished report, unpaginated.

Waller, R.M., 1957, Ground-water and permafrost at Bethel, Alaska: U.S. Geological Survey Hydrologic-data Report no. 2, 10 p.

_____, 1959, Ground-water reconnaissance of Koyuk and Shaktoolik villages, Alaska: U.S. Geological Survey Hydrologic-data Report no. 7, 10 p.

_____, 1966, Ground water hydrology, in Environment of Cape Thompson region, Alaska: U.S. Atomic Energy Commission Division of Technical Information, Report PNE-481, p. 115-124.

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